

ASGVIS

V-Ray for SketchUp **Version 1.48**

New Features User Manual By Fernando Rentas



Render by Adam Warner, Aura Studio

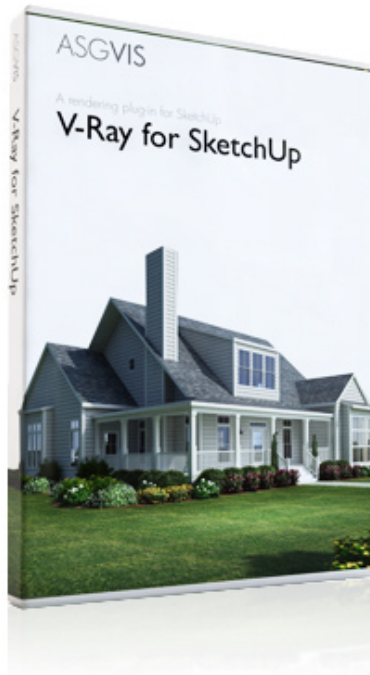
V-Ray for SketchUp

A Rendering Plug-in for Designers

SketchUp users in all fields depend on V-Ray as a quick, easy and cost-efficient way to render their most cutting edge images. Developed with the Chaos Group, V-Ray for SketchUp works within Google's SketchUp, one of the most popular 3D modeling tools available today.

New features in version 1.48 include more shader types (great for metal textures), more than ten new procedural textures (including dirt), better material layers, faster parsing times, lights now have the ability to add IES profiles & more.

Download the 30 day trial, or buy V-Ray for SketchUp now from asgvis.com!



Contents

Page 4-8

Page 9

Page 10

Page 11

Page 12-13

Page 13

Page 14-15

Page 16-19

Page 20

Page 21

Page 22-31

Page 32

User Interface (UI)

Anti-aliasing

Physical Camera

Sun & Sky

Indirect Illumination

Color Mapping

Lights: IES Lights

Lights: Spotlights

V-Ray Frame Buffer

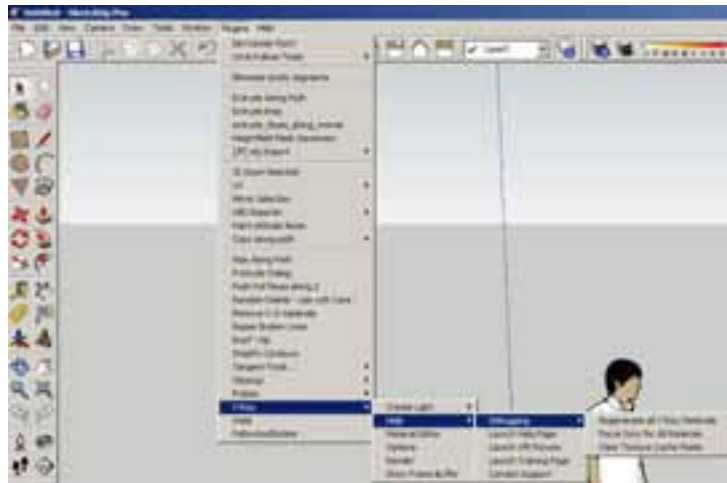
Output (Rollout)

Materials

Helpful Links

User Interface (UI)

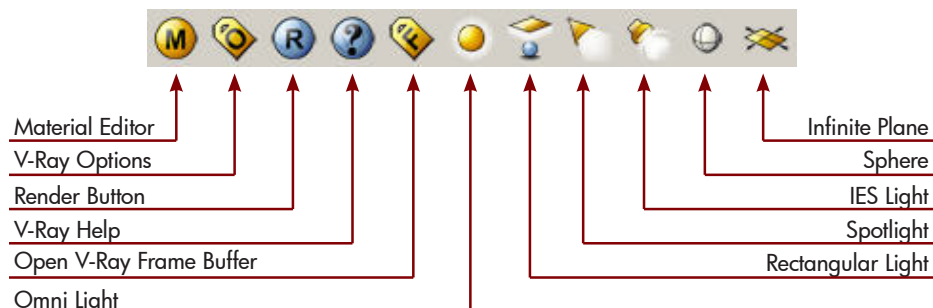
V-Ray Menu: There are now more V-Ray options on the plug-ins menu of SketchUp.



Enable and Disable V-Ray: This option will allow you to automatically disable or enable the program. To find this option on a PC, look under Windows/Preferences/Extensions. On Mac, the option is under SketchUp/Preferences/Extensions. This option will take effect the next time you start SketchUp.



New Toolbar Icons: For this new version we re-worked our old toolbar icons.



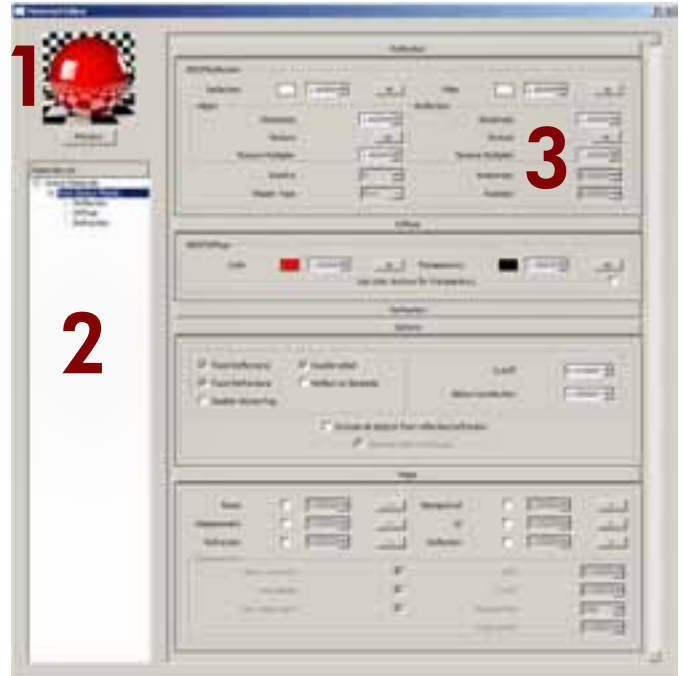
User Interface (UI) : Material Editor

V-Ray Material Editor: Allows you to create V-Ray materials. You can access this window by clicking on the first icon on the V-Ray toolbar.



The V-Ray material editor has three areas:

1. **Material Preview:** By clicking the preview button you can see a preview of the selected material or layer.
2. **Material Workspace:** This area shows all of the created materials. By right clicking on them you will find more material options.
3. **Material Options:** Allows you to change and control all of the material properties.



Adding Materials: By right clicking on "Scene Material" you will find options to create and load materials.

How to add materials:

1. Right click on "Scene Material".
2. Select "Create Material".
3. Choose one of the V-Ray material types.

V-Ray for SketchUp has five different material types:

1. Skp Two Sided Material
2. V-Ray Default Material
3. Toon Material
4. Angle Blend Material
5. Two Sided Material



Material Option: By right clicking on one material you will have more options to improve or manipulate the material. These options include: Add Layers, Save, Duplicate, Rename and Import.

How to add layers to materials:

1. Right click on the material.
2. Select "Create Layer".
3. Select the desired layer to add.

Using the explained steps you can:

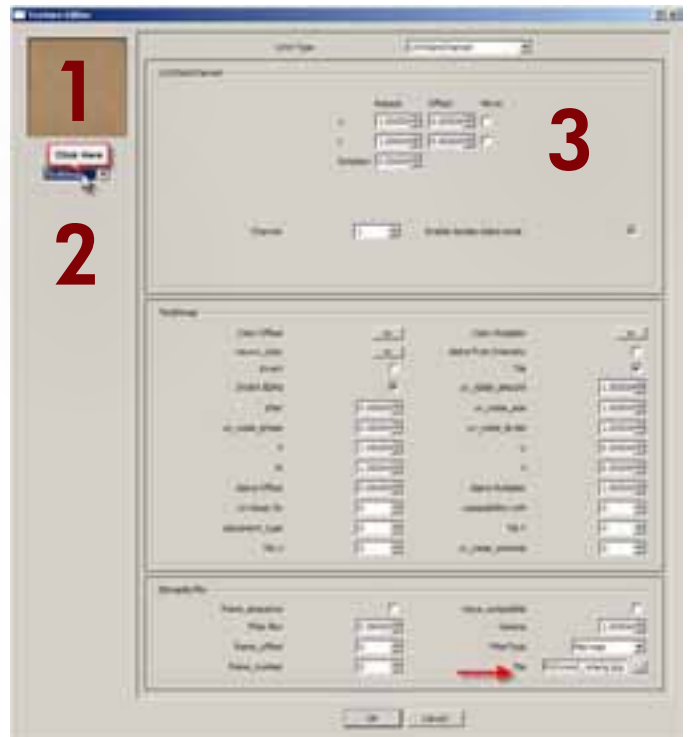
- Save Material
- Duplicate Material
- Rename Material
- Remove Material
- Import Material
- Apply Material to Selection
- Select All Objects Using This Material
- Apply Material to Layer
- Purge Unused Materials



Texture Editor: This option allows you to add a texture mapping (images or procedural textures) to the materials. To access the texture editor, left click on the "m" or "M" on the materials option area.

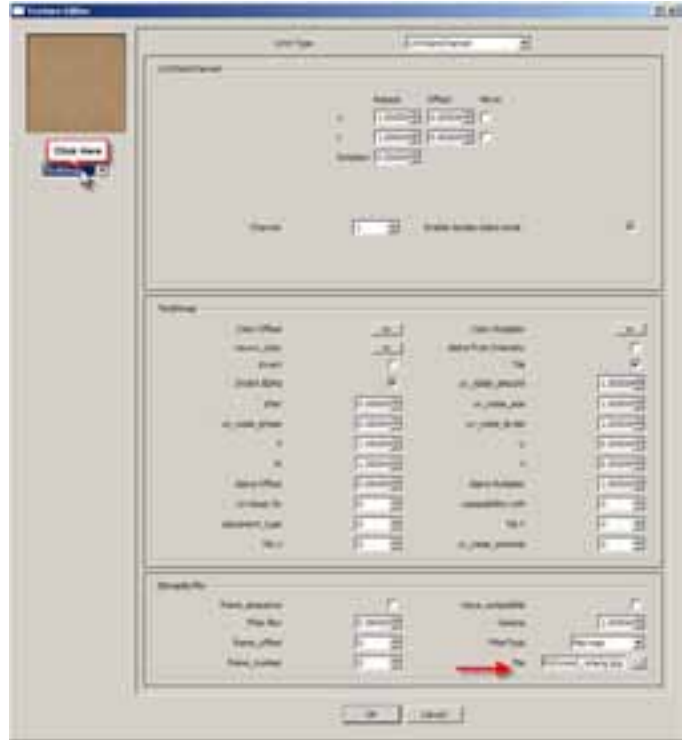
The Texture editor has three areas:

1. Texture Editor Preview: By clicking the preview button you can see a preview of the selected texture.
2. Mapping Type: This area allows you to select the type of texture mapping.
3. Texture Editor Options: Allows you to change and control the parameter for the textures.



How to add mapping:

1. Click on the "m" near diffuse color multiplier.
2. Select the desired texture mapping (ex. TexBitmap).
3. Go to the lower right corner and click on the three dots next to "File" to select the image to use as a mapping.
4. Click ok.



User Interface (UI) : Render Options

V-Ray Render Options: Controls all the rendering parameters in V-Ray. You can setup options from anti-aliasing and Environment to camera and resolution.



Save V-Ray Option: Allows you to save all of the V-Ray parameters to use in the future.

Open V-Ray Option: Allows you to open the pre-saved V-Ray options.

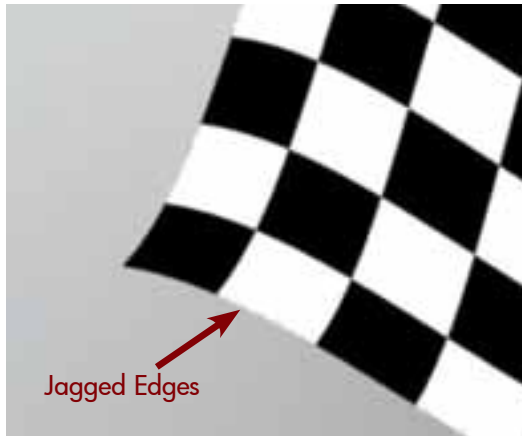
Load Default V-Ray Option: Allows you to revert back the settings to the V-Ray default options.



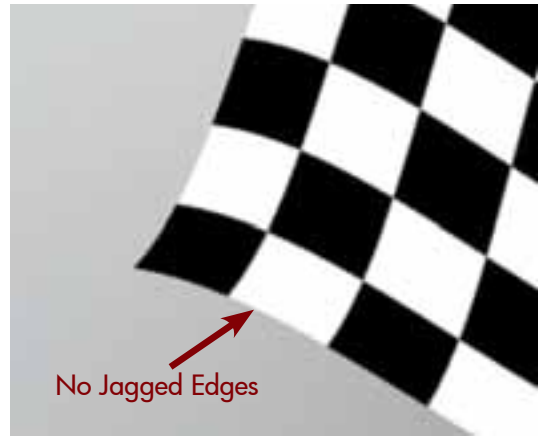
Anti-aliasing

Adaptive Subdivision: This new option improves the anti-aliasing around the edges of the geometry and on vertical and horizontal lines.

Object Outline: This option always “super-samples” the edge of objects. Your edges will always be sharp using Object Outline.



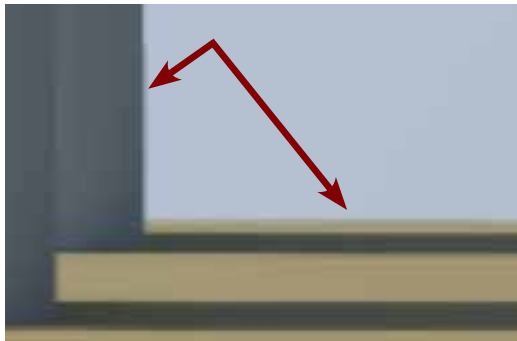
No Object Outline



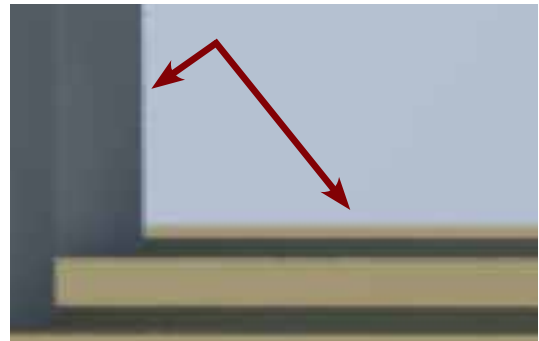
Object Outline

You can see in the example above how the render without object outline enabled has jagged edges while the render with Object Outline does not.

Randomize Sampler: This option displaces the sampler slightly to get better anti-aliasing on horizontal and vertical lines, and avoids the unwanted banding of edges.



Randomize Sampler Off

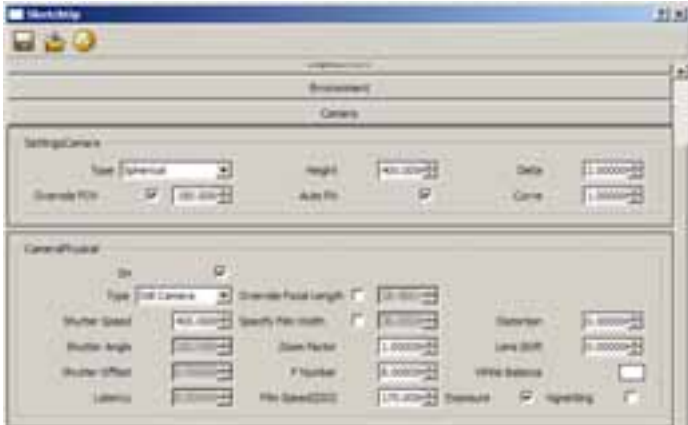


Randomize Sampler On

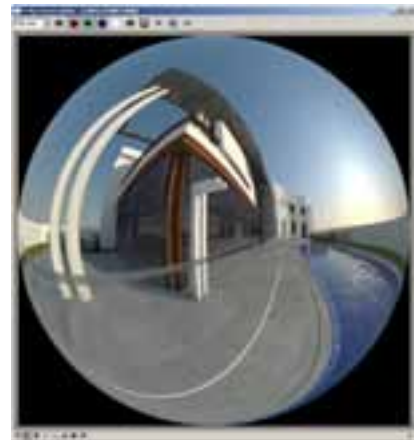
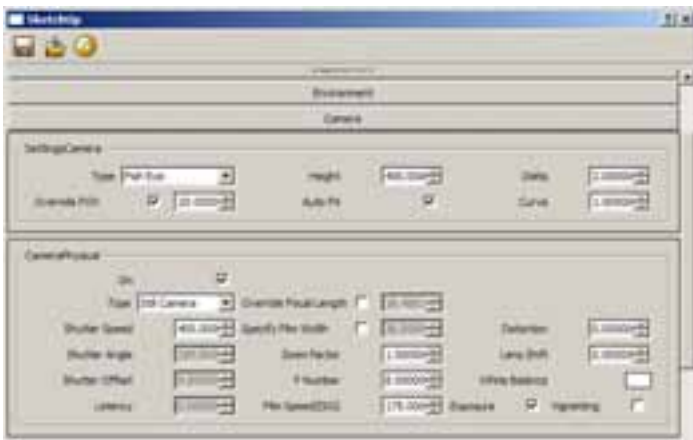
As you can see in this example, the image on the right has better anti-aliasing and no banding edges.

Physical Camera

Use the Physical Camera to render any type of standard camera. With this new feature you have the ability to create different lens effects, such as 360 spherical images and a Fisheye lens using the physical camera.



Example using Spherical camera with Override FOV at 180 degree. Physical Camera On.



Example using Fisheye camera with Override FOV at 20 degree. Physical Camera On.

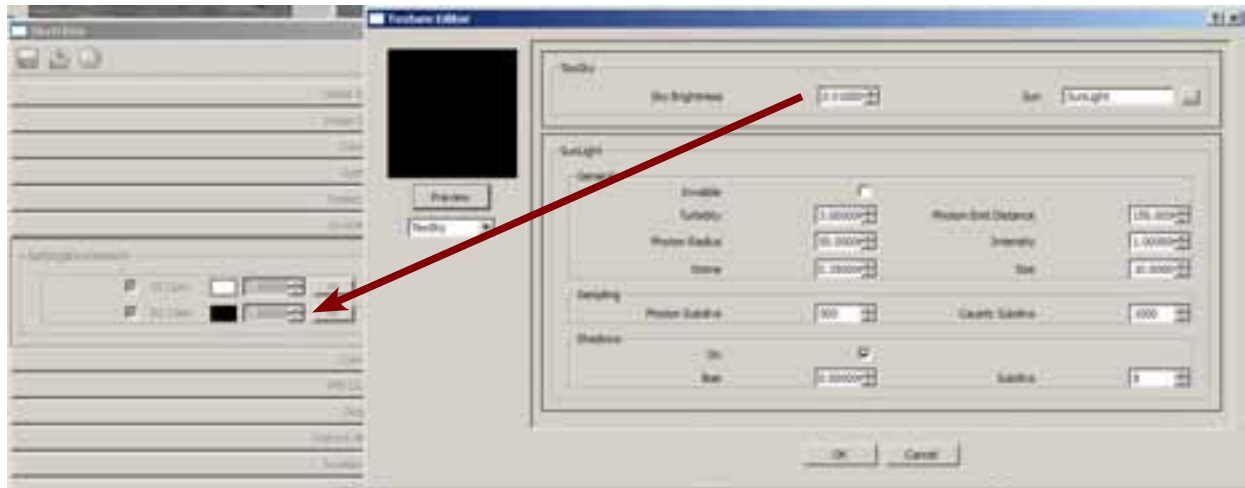
Tips:

Using a Spherical Camera, if you override FOV to 360 and set the image aspect ratio to 2:1 (width: height) on the "Output" rollout, you can make a Panoramic render.

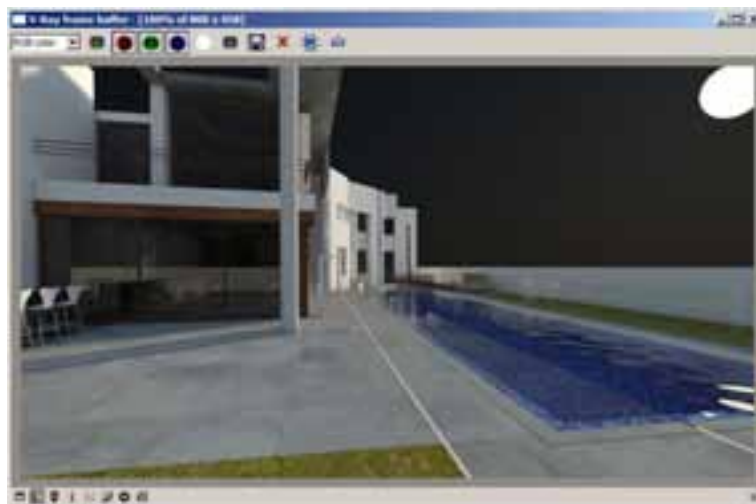


Sun and Sky

Sky Brightness: Allows you to setup a different intensity for the sky mapping without affecting the intensity of the sunlight. With this option you can get a clear sky or a dark sky with a moon, no matter the brightness of the sun.



You have to change the Sky Brightness on the “BG Color”. If you change this option through “GI color”, it will affect the illumination.



Tips:

When editing the sun parameters on GI Color, the setting is automatically updated in BG Color and vice-versa. You don't have to setup the same value in each slot, with the exception of the “Sky Brightness” value.

Indirect Illumination

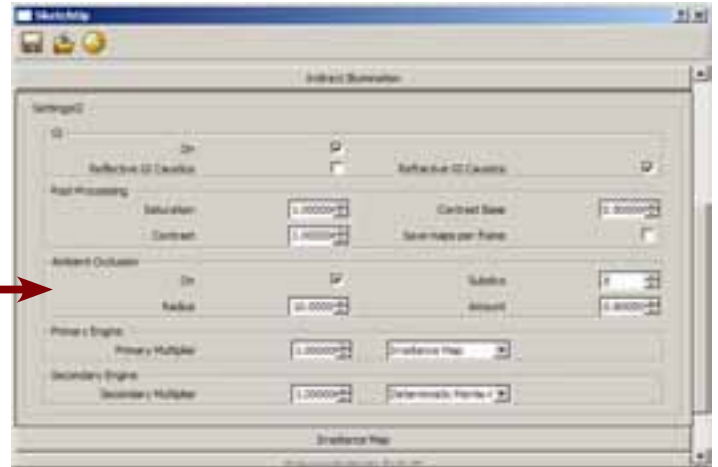
Ambient Occlusion (AO): This shading method will add more realism to your render and can produce the feeling of a more detailed image. Find the global option of AO under “Indirect Illumination” rollout.

On: This option enables or disables Ambient Occlusion.

Radius: Determines the amount of area where the AO effect is produced.

Subdivs: Determines the quality of Ambient Occlusion. Large values mean better quality, but might increase the render time.

Amount: The amount of Ambient Occlusion. Larger numbers mean more Ambient Occlusion.



This image has no AO. Note how the details on the door and windows are missing.



This image has AO. All of the details are visible even with a very low quality GI solution.

Here is another example of Ambient Occlusion. In the image on the left, without AO, the render looks flat and some details in the ceiling are missing. The image on the right has AO, and the details are sharp.



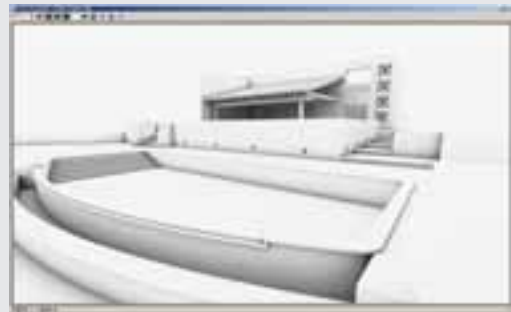
Ambient Occlusion Off



Ambient Occlusion On

Tips:

V-Ray for SketchUp doesn't have an AO channel, so there is no automatic way to create an AO pass. If you want to create an AO pass for post-processing purposes, use an override material and select a white color, then enable AO. On the environment, don't use any mapping for GI color and BG color (use just plain white as a color).




Color Mapping

We added two new options in this version.

Clamp Level: Allows you to define the level at which color components will be clamped. Now you can control the range of color.

Adaptation Only: The color mapping will not be applied with this option. However, V-Ray will proceed with its calculation as though color mapping is applied.

Lights IES Lights

IES Light:  This V-Ray for SketchUp new light type can be used to load and render real-world light distribution profile files (IES files - Illuminating Engineering Society). The icon is located in the V-Ray main toolbar.

Parameters

Enabled: Turns on or off the IES lights.

Shadows: Turns on or off the IES shadows.

Soft Shadow: This causes the light to take into account the information about the light shape in the IES file (if there is any shape defined) so that it produces proper soft shadows.

Shadow Color: Determines the color of the shadows.

Shadow Bias: Bias moves the shadow toward or away from the shadow-casting object (or objects). If the Bias value is too low, shadows can “leak” through places they shouldn’t, produce more patterns, or make out-of-place dark areas on meshes. If Bias is too high, shadows can “detach” from an object. If the Bias value is too extreme in either direction, shadows might not render at all.

Shadow Subdivs: This value controls the number of samples V-Ray takes to compute lighting (the quality of the shadows). Lower values mean more noisy results, but will render faster. Higher values produce smoother results but take more time. Note that the actual number of samples also depends on the DMC Sampler settings.

File (picker): Allows you to load the IES file that defines the light distribution.

Filter Color: This parameter determines the color of the light.

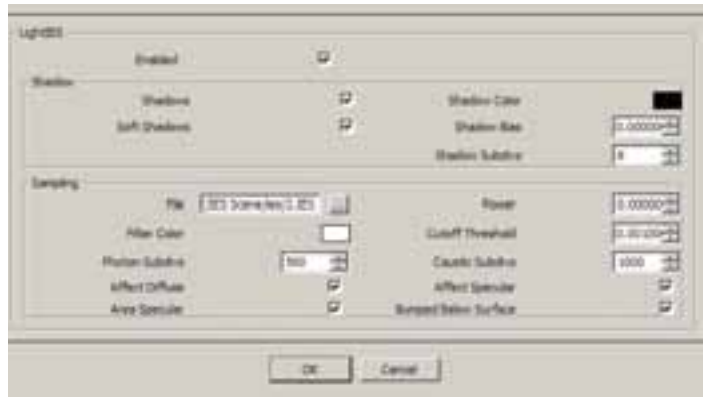
Photon Subdivs: This value is used by V-Ray when calculating the Global Photon Map. Lower values mean more noisy results, but will render faster. Higher values produce smoother results but take more time.

Affect Diffuse: This determines whether the light is affecting the diffuse properties of the materials.

Affect Specular: This determines whether the light is affecting the specular of the materials.

Area Speculars: When this option is Off, the particular light will be rendered as a point light in the specular reflections.

Power: Determines the intensity of the light in lumens. A typical 100W electric bulb emits about 1500 lumens of light.




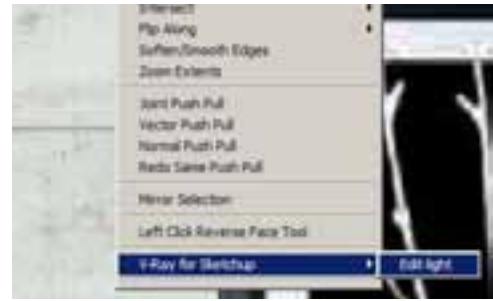
Cutoff Threshold: This parameter specifies a threshold for the light intensity, below which the light will not be computed. This can be useful in scenes with many lights, where you want to limit the effect of the lights to some distance around them. Larger values cut away more from the light; lower values make the light range larger. If you specify 0.0, the light will be calculated for all surfaces.

Caustic Subdivs: This option controls the amount of photons that V-Ray will trace to estimate caustics (quality of the caustics). Large numbers slow down the calculation of the caustics photon map and may take more memory.

Bumped Below Surface: This is used for cases where the light shines on surfaces with extreme bump mapping. For such surfaces, it is possible that the bump map will turn the surface normal towards the light, even though the light shines on the back of the surface. The light option defines whether such portions of the material will be lit or not.

How to use IES Lights:

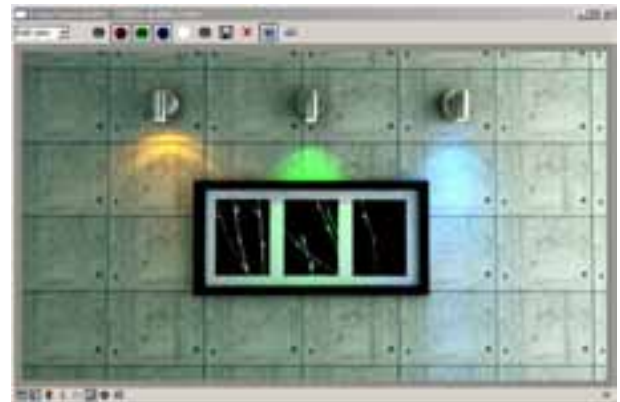
1. Click on the IES light  icon to add a V-Ray IES light to your scene.
2. Click on the scene to select the location of the IES light.
3. Right click on the IES light, select V-Ray for SketchUp and then "Edit light".



4. Click on "File" to load an IES file from your hard drive.
5. At this point you can adjust the setting of the IES light to get your desired effect. For example, if you are using the Physical Camera you might have to increase the power to make the light visible. Also you can change the "Filter Color" to control the color of the light.



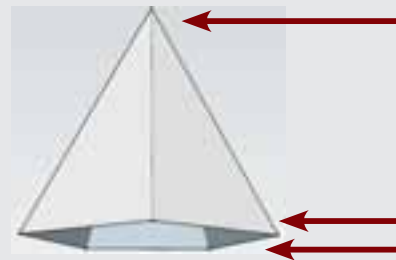
6. Render your scene.



Tips:

The unit for the V-Ray IES light is in lumens and a typical 100W electric bulb emits about 1500 lumens of light. For this reason when you are using the physical camera you might use a very high value. The physical camera will control the exposure of the sun and also reduce the brightness of every other type of light.


Once you created an IES light you have to scale the icon to your desired position. Remember the lower part of the cone is the light emitter. Do not close that part inside of the other surface because you can hide the IES light.



You can hide this part on the ceiling

This is the area that emits light. Do not hide this part on the ceiling.

Lights: Spotlight

Spotlight:  This is a new V-Ray for SketchUp light type that can be used to create a spotlight. The icon is located in the main V-Ray toolbar.

Parameters:

Enable Controls

On: Turns on or off the spotlight.

Shadows: Turn on or off the spotlight shadows.

Affect Diffuse: This determines whether the light is affecting the diffuse properties of the materials.

Affect Specular: This determines whether the light is affecting the specular of the materials.

Area Specular: When this option is Off the particular light will be rendered as a point light in the specular reflections.

Intensity

Color: This parameter determines the color of the light.

Intensity: Determines the intensity of the light.

Units: Allows choosing the light units. The different units are:

Default (scalar): The color and multiplier directly determine the visible color of the light without any conversion. The light surface will appear with the given color in the final image when seen directly by the camera (assuming there is no color mapping involved).

Lumious Power (lm): Total emitted visible light power measured in lumens. When this setting is used, the intensity of the light will not depend on its size. A typical 100W electric bulb emits about 1500 lumens of light.

Luminance (lm/m²/sr): Visible light surface power measured in lumens per square meter per steradian. When this setting is used, the intensity of the light depends on its size.

Radiant Power (W): Total emitted visible light power measured in watts. When using this setting, the intensity of the light does not depend on its size. Keep in mind that this is not the same as the electric power consumed by a light bulb, for example. A typical 100W light bulb only emits between 2 and 3 watts of visible light.

Radiance (W/m²/sr): Visible light surface power measured in watts per square meter per steradian. When this setting is used, the intensity of the light depends on its size.

Sampling

Falloff Type: Determines how the light will transition from full strength to no lighting inside the light cone.

Photon Subdivs: This value is used by V-Ray when calculating the Global Photon Map. Lower values mean more noisy results, but will render faster. Higher values produce smoother results but take more time.

Caustic Subdivs: This option controls the amount of photons that V-Ray will trace to estimate caustics (quality of the caustics). Large numbers slow down the calculation of the caustics photon map and may use more memory.



Cutoff Threshold: This parameter specifies a threshold for the light intensity, below which the light will not be computed. Larger values cut away more from the light; lower values make the light range larger. If you specify 0.0, the light will be calculated for all surfaces.

Cone Angle: Allows you to adjust the angle of a light cone. Please see the example below.



Cone Angle 0.2



Cone Angle 1.0 (Default)



Cone Angle 2.0

Penumbra Angle: This is the angle from the edge of the spotlight's beam over which the intensity of the spotlight falls off to zero. Please see the examples below.



Penumbra Angle 0.0
(Default)



Penumbra Angle 0.2



Penumbra Angle 1.0



Penumbra Angle 0.0
(Default)



Penumbra Angle 0.2



Penumbra Angle 1.0

Bumped Below Surface: This is used for cases where the light shines on surfaces with extreme bump mapping. For such surfaces, it is possible that the bump map will turn the surface normal towards the light, even though the light shines on the back of the surface. The light option defines whether such portions of the material will be lit or not.

Shadows

Shadow Color: Determines the color of the shadows.

Shadow Bias: Bias moves the shadow toward or away from the shadow-casting object (or objects). If the Bias value is too low, shadows can “leak” through places they shouldn’t, produce more patterns or make out-of-place dark areas on meshes. If Bias is too high, shadows can “detach” from an object. If the Bias value is too extreme in either direction, shadows might not be rendered at all.

Radius: This is the radius of the light source. If you increase this value you can create softer shadows.

Shadow Subdivs: This value controls the number of samples V-Ray takes to compute lighting (the quality of the shadows).

Decay: Normally, the light intensity is inversely proportional to the square of the distance from the light (surfaces that are farther from the light are darker than surfaces that are closer to the light). The possible types are:

Linear: No Decay at all, and light remains at the same intensity. The intensity will not decay with distance.

Inverse Decay: An inverse relationship between the intensity of the light and the distance it travels.

Inverse Square Decay: Still an inverse relationship, but intensity decreases much more rapidly. This is the physically correct decay mode.

Barn Door On: This option enables or disables the barn door effect. Barn doors restrict the light cone on the four sides of the light to produce a rectangular light shape (in the real world, they are four planes attached in a square around the light).

Barn Door Left: Allows you to control the left shutter value.

Barn Door Right: Allows you to control the right shutter value.


Barn Door Top: Allows you to control the top shutter value.

Barn Door Bottom: Allows you to control the bottom shutter value.



This is the kind of light that the barn door effect tries to mimic.

How to use Spotlights:

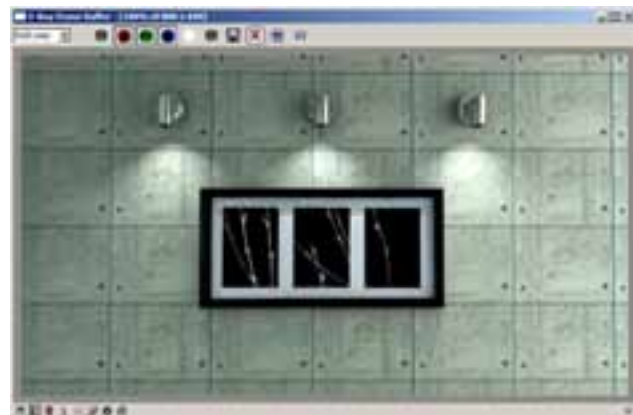
1. Click on the  icon to add a V-Ray Spotlight into your scene.
2. Click on the scene to select the location of the light.
3. Right click on the Spotlight, select V-Ray for SketchUp and then "Edit Light" to enter the light options.



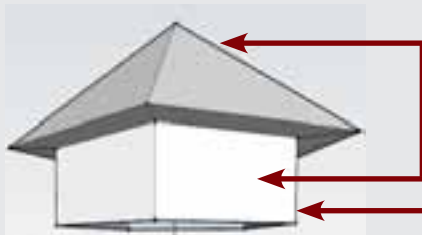
4. At this point you can adjust the setting of the Spotlight to get the desired effect. If you are using the Physical Camera you might have to increase the power to make the light visible.



5. Render your scene.



Tips:



You can hide this part on the ceiling.

This is the area that emits light. It is the middle of the base area. Do not hide this part on the ceiling.

V-Ray Frame Buffer (VFB)

Region Render: This option allows you to render a region of the scene in the V-Ray Frame Buffer.

How to use the V-Ray Frame Buffer:

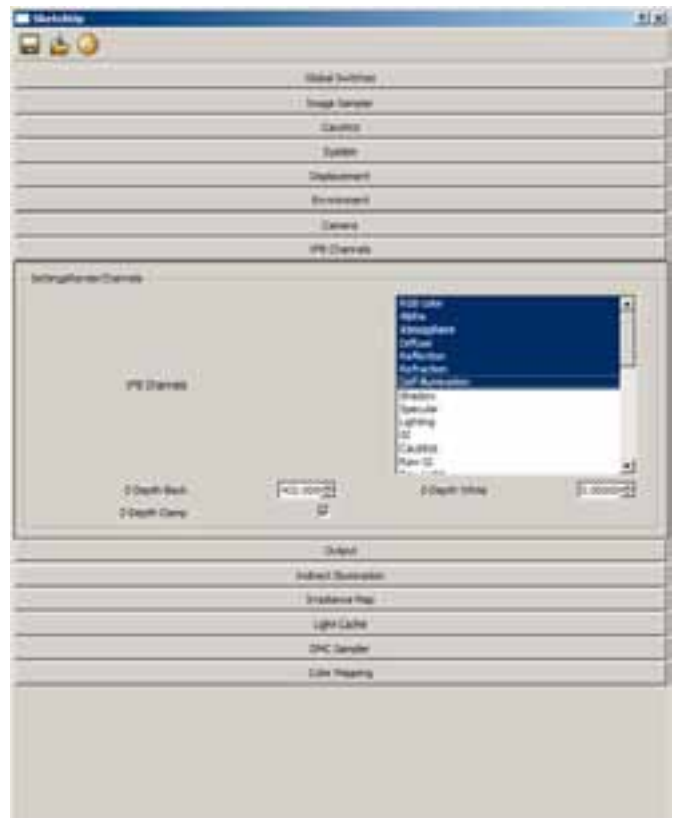
Click on the Region Render icon located in the V-Ray Frame buffer, then make a window selection on the render area.



VFB Channel: This option allows you to render separate elements of the image.

How to use the VFB Channel:

You can enable the channels by clicking once to highlight them. In the image to the right, the blue highlighted channels are enabled and the white channels are disabled.

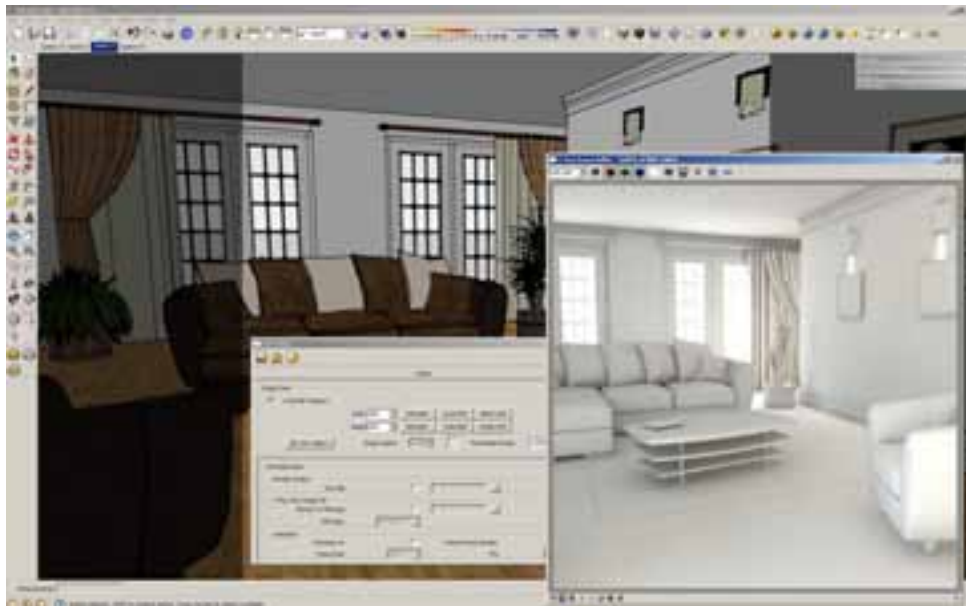
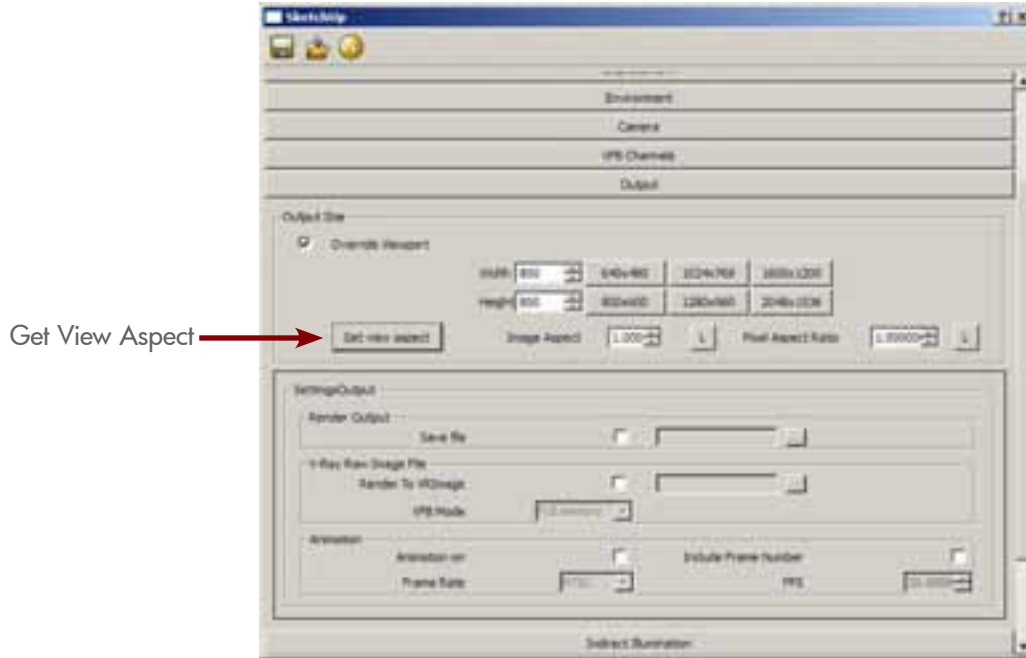


OutPut (Rollout)

Get View Aspect: This option allows you to match the viewport aspect ratio (dimension of the viewport) to the SketchUp aspect ratio.

How to use Get View Aspect:

After setting up your desired SketchUp camera ratio, go to the V-Ray option, then to the Output tab and click "Get view aspect". V-Ray will automatically match the SketchUp camera ratio.



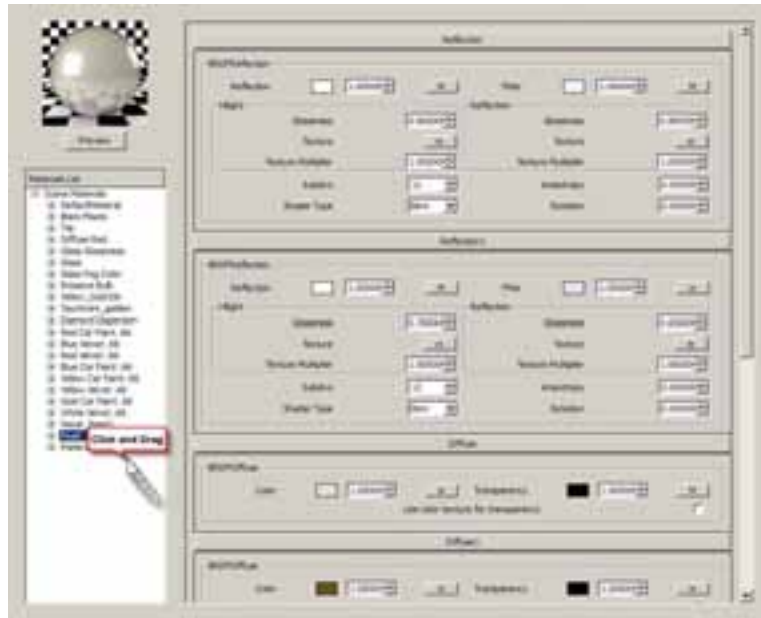
In this image the SketchUp camera ratio was set to 1.0

Materials

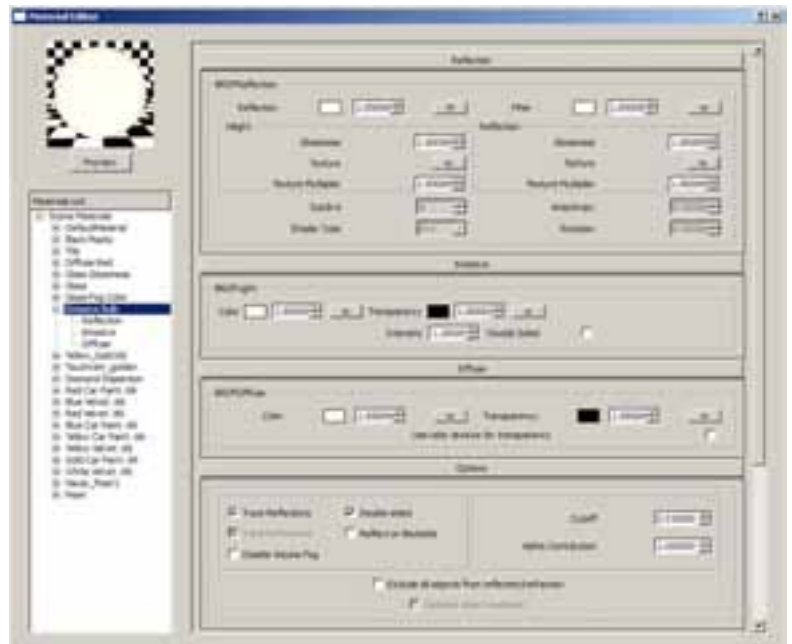
Materials Arrangement: This new build allows you to move and arrange the materials in any order by dragging and dropping the material in your desired position on the V-Ray Material Editor.

How to use Material Arrangement:

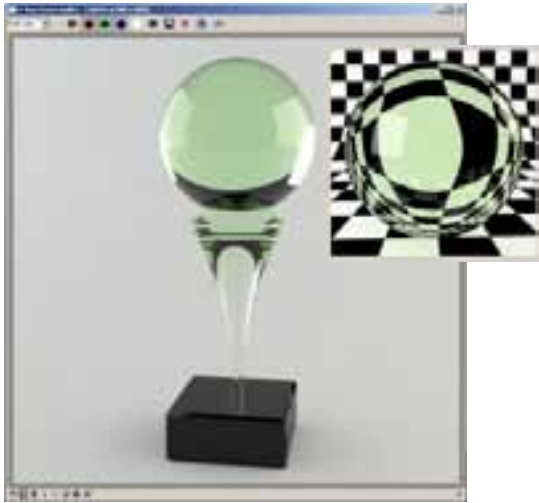
Select the material and move it to the new position.



Layer Arrangement: Now you can arrange the material layer to any position, allowing you to create a variation of effects that were very difficult to create with the old version. You can place the reflection layer on top of the emissive layer to create a reflective light bulb material.



Material Preview: We improved our material editor to include a preview of the material that looks as close as possible to the final render.



Green Glass



Gold

Layer Preview: It is now possible to make a preview of every single layer in your material to see how this layer affects the final result. Below is an example of the Layer Preview. The material has four layers: two diffuse layers and two reflection layers.



Diffuse 1

Diffuse

Reflection 1

Reflection

Final Material



Render Sample



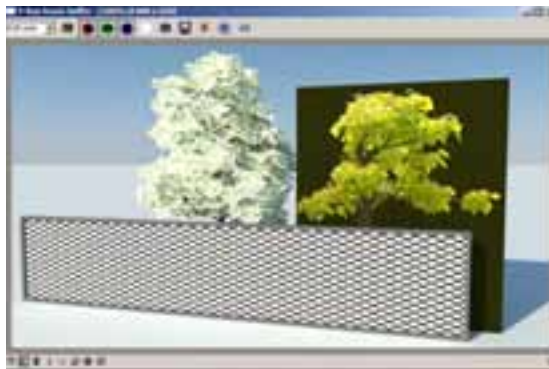
Material Editor

Alpha Transparency: This new build supports direct alpha transparency on the material.

Use Color Texture for Transparency: This option allows you to activate the alpha transparency directly on the material. V-Ray only supports .png , .tiff and native SketchUp transparency materials.

How to use Color Texture for Transparency:

Go to the V-Ray material Editor and select the material that you want to apply transparency. In the Diffuse Layer, enable the option "Use color texture for transparency". Remember that the images should be transparency .png or .tiff or native SketchUp transparencies.



Render Without Transparency

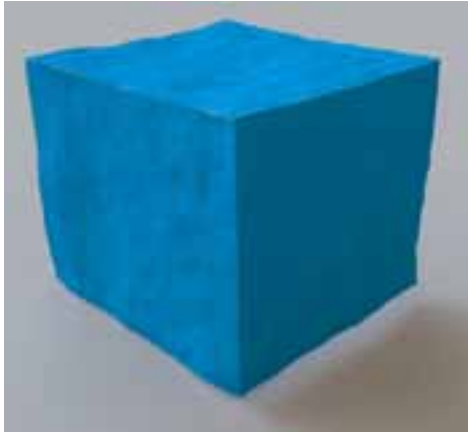


Render With Transparency

Displacement Per Material: You have the ability to change the displacement parameters in every material in your scene. If you have geometry that's far away from the camera, you can reduce the displacement quality to that geometry and speed up your render. These options are located on the V-Ray Material Editor under the Map rollout.



Keep Continuity: Using continuity will produce a connected surface, without splits.



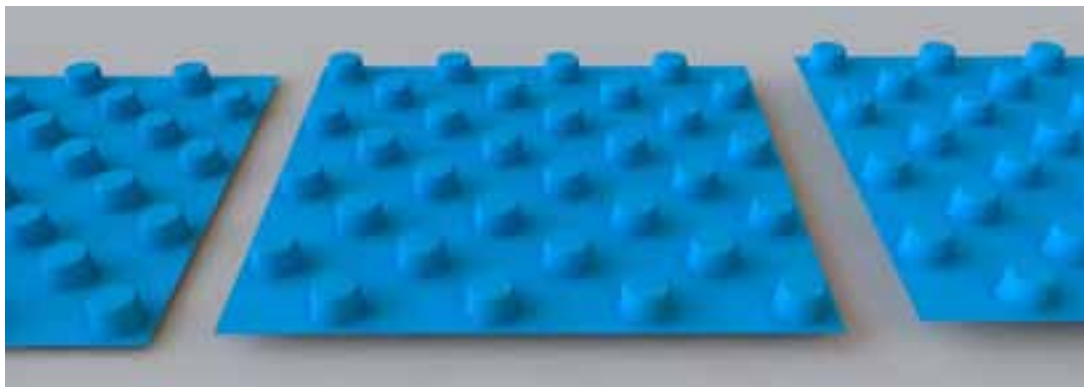
Keep Continuity On



Keep Continuity Off

View Dependent: When this is on, edge length determines the maximum length of a sub-triangle edge in pixels. A value of 1.0 means that the longest edge of each sub-triangle will be about one pixel long when projected on the screen. When View Dependent is off, edge length is the maximum sub-triangle edge length in world units.

Shift: This option shifts the displaced surface up and down along the normals. This can be either positive or negative.



Left Shift = 10, Center Shift = 5, Right Shift = 0



Left Shift = -10, Center Shift = -5, Right Shift = 0

As you can see, if the values are negative you can shift the geometry under the floor.
This is not the same as "Cutoff".

Cutoff: This will clip the surface geometry in places where the displacement map value is below the specified threshold. This can be used for clip mapping a displacement map value, below which geometry will be clipped.



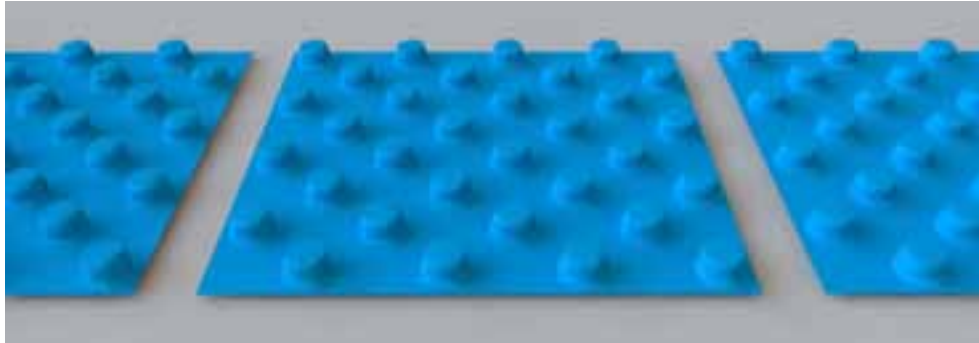
In this example the Cutoff = 0



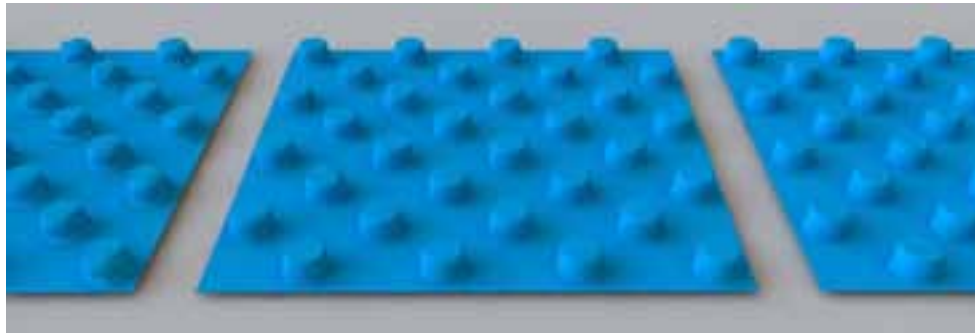
This example demonstrates the use of cutoff to clip away geometry from an object.
In this example the Cutoff = .5

Max Subdivs: This controls the maximum sub-triangles generated from any triangle of the original mesh. The value is in fact the square root of the maximum number of sub-triangles. For example, a value of 256 means that at most, $256 \times 256 = 65536$ sub-triangles will be generated for any given original triangle. It is not a good idea to keep this value very high as it will significantly increase the render time.

Edge Length: This determines the quality of the displacement. Each triangle of the original mesh is subdivided into a number of sub-triangles. More sub-triangles mean more detail in the displacement, slower rendering times and more RAM usage. The meaning of edge length depends on the view-dependent parameter below.



This is an example of the global value of the displacement.
Notice that all geometries have the same quality.



The above example uses per material displacement.
Left Edge Length = 4, Center Edge Length = 2, Right Edge Length = 1.
Notice that all three geometries have a different quality.

Tips:

If you are making a very large rendering, decrease the Edge Length value. If you have “View Dependant”, the Edge Length depends on the resolution size. A small value will increase your render time considerably. For best results, try to use Grayscale images.

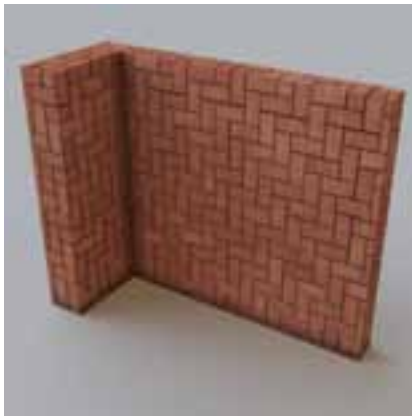
Procedural Texture Mapping: V-Ray has fourteen new texture maps that allow you to create different effects on the material editor. You can use this new texture mapping in any layer to blend the mapping.

Dirt: This texture mapping type can be used to simulate dirt on objects, or to produce an ambient occlusion pass.

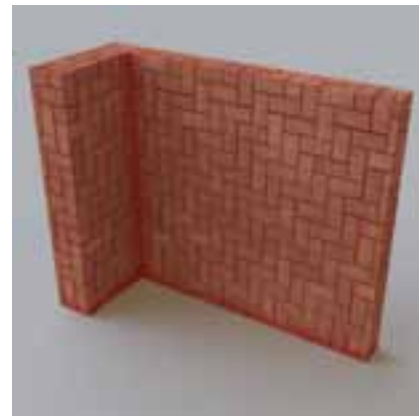


Black_Color: This is the color of the dirt or the occluded area. By default the color is Black. You can also use a texture mapping for this option.

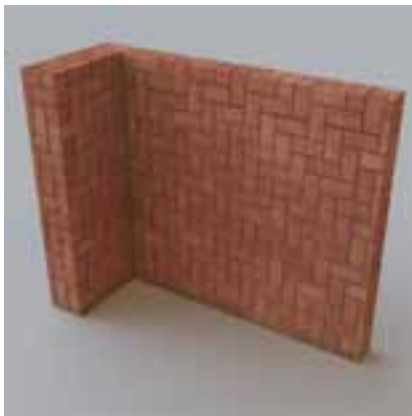
White_Color: This is the color of the unoccluded area (areas without dirt). By default the color is white. You can also use texture mapping for these options.



Black Color = Default
White Color = Brick Texture



Black Color = Red
White Color = Brick Texture



Black Color = Grass Texture

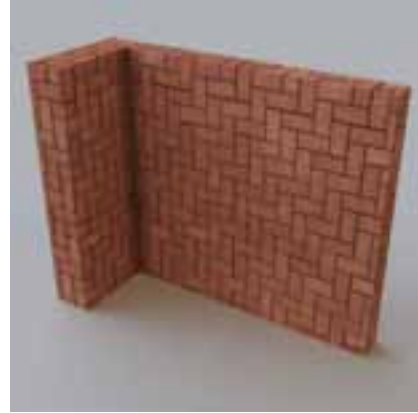


Ignore For GI: When this option is enabled the dirt effect will be taken into consideration for GI calculations.

Consider Same Object Only: When on, the dirt will affect only the objects themselves, without including contact surfaces and edges. If off, the entire scene geometry is participating for the final result.

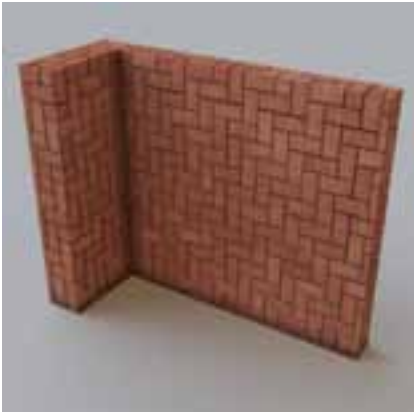


Consider Same Object Only Off



Consider Same Object Only On

Invert Normal: This option allows you to invert the dirt with respect to surface normals.



Invert Normal Disable



Invert Normal Enable

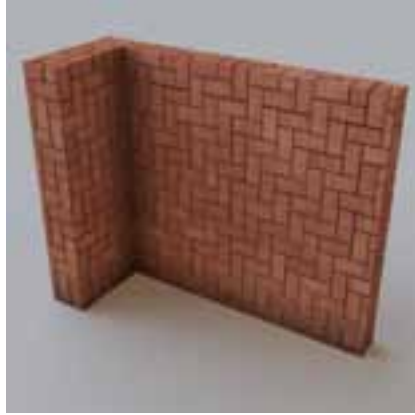
Falloff: This parameter controls the speed of the transition between the areas with dirt and the areas without dirt.

Bias X , Y, Z: These parameters will bias the normals to the X (Y, Z) axes, so that the dirt effect is forced to those directions. These parameters can also be negative values for inverting the direction of the dirt.

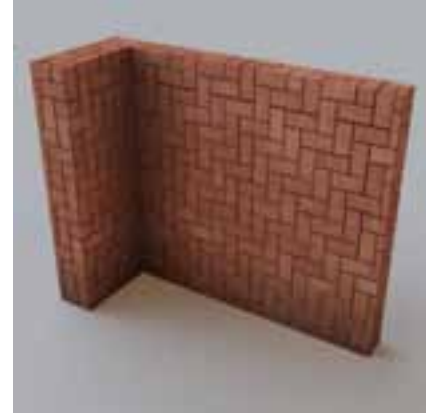
Radius: These parameters determine the amount of area where the V-RayDirt effect is produced.



Radius = 5



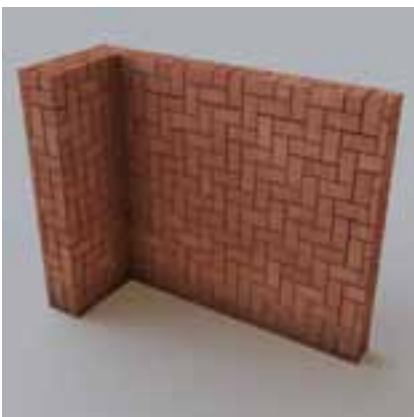
Radius = 10



Radius = 20

Distribution: This parameter will force the rays to gather closer to the surface normal. The effect is that the dirt area is being narrowed closer to the contact edges. For ambient occlusion, set this parameter to 1.0 to get distribution similar to the ambient lighting on a diffuse surface.

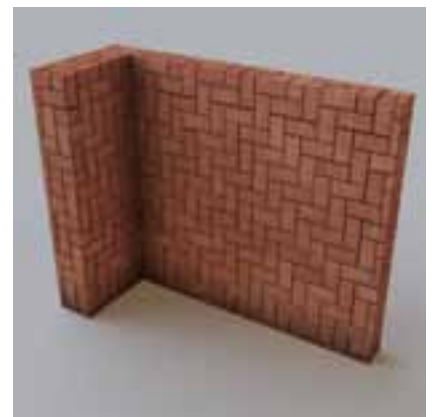
Subdivs: Controls the number of samples that V-Ray takes to calculate the dirt effect. Lower values render faster but produce a more noisy result.



Subdivs = 2

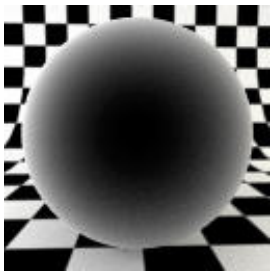


Subdivs = 8

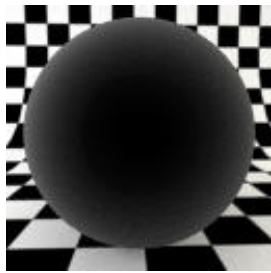


Subdivs = 16

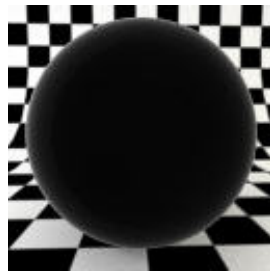
In addition to the Dirt material, V-Ray for SketchUp has other procedure mapping that you can combine to create different effects. Below is a list with the other texture mappings.



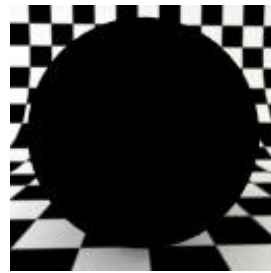
Falloff
Perp/Parallel



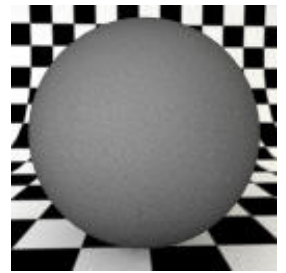
Falloff
Towards/Away



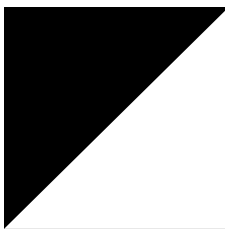
Falloff
Fresnel



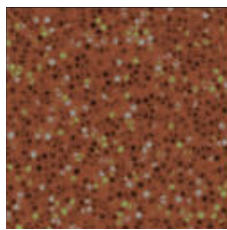
Falloff
Shadows/Light



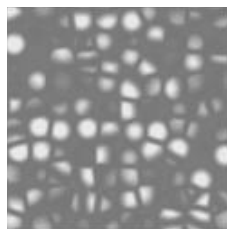
Falloff
Distance/Blend



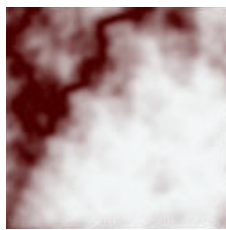
Invert



Granite



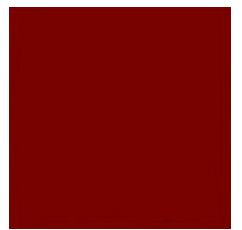
Leather



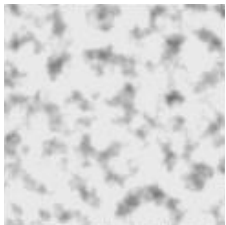
Marble



Smoke



Snow



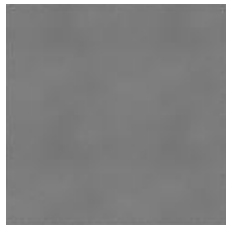
Speckle



Splat



Stucco



Water



Wood

Helpful Links

Contact the ASGVIS support team at support@asgvis.com, or +1 877-ASGVIS-1 between 9:00am and 5:00pm EST, Monday through Friday.

Some links that will help you learn V-Ray for SketchUp:

Software Download - Make Sure You're Using the Latest Version
<http://tinyurl.com/kl3da6>

Installation Manual
<http://tinyurl.com/kl3da6>

Frequently Asked Questions
<http://tinyurl.com/yaarb3p>

V-Ray Forums
<http://forum.asgvis.com>

Tutorials
<http://tinyurl.com/kl3da6>

Previously Recorded Webinars
<http://tinyurl.com/lodo5l>

Material Downloads
<http://tinyurl.com/yh2h2c9>

Classroom and Online Training
<http://tinyurl.com/ykdwp6b>

Subscribe to ASGVIS News - Free materials, video tutorials, tips & more delivered to your in-box every other Tuesday
<http://tinyurl.com/yahjgl3>

ASGVIS

3430 2nd Street, Suite 400

Brooklyn, MD 21225

(Phone) 410-468-0777

(Fax) 443-378-7124

www.asgvis.com